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Stephen M. Allen et al.  
PLANT BIOTIN SYNTHASE  
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Alignment of Biotin Synthase Proteins from Barley (SID18), Corn (SID 20-24), Prickly Poppy (SID 26), Soybean (SID 28), and Wheat (SID 32)

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SID18  TTTPS-----AVSP--SAAAPFRPALAE--PAMLLARSLRSRVSPFASAVSAAPFSSVSAAAEAEAVRDGPRNDWTRP
SID20  MA-----LMLARNLRSRLRPPLAA--AAAFSS--AAAEAEAIRDGPBRNDWSRP
SID22  MA-----LMLARNLRSRLRPPLAA--AAAFSS--AAAEAEAIRDGPBRNDWSRP
SID24  MA-----LMLARNLRSRLRPPLAA--AAAFSS--AAAEAEAIRDGPBRNDWSRP
SID26  -----MLKVQSL-RAR-----LRPLIFIS-----TFSSLSSSSSSSAAAVQAEERTIKEGPRNDWSRD
SID28  TKPNPKHKYRCCLLSLSCLYSQISHSFVSVLNPFESKMNFLARPIFRA--PSLMALHSSYAYSSASAAAIQAEIRAIKEGPRNDWSRD
SID32  T-----MLVRSVFRSQ-----LRPSV-SG-----GLQASACYSLSAASAEAEERTIREGPRNDWSRD
1705463 MAT-----LRTSLRSRLILRSNTPKLAPIS-----SSVRLQVQKSRYNTGVSSVPQATETSTSPSKOVYQEALNATE-PRSNWTRRE
SID30  M-----FT-----RTIRQIRRSSALSLV-----RNNWTRRE
2995363 M-----MSTIYRHLSTA--RPALTGYATNAA--VKSTTASSEASTLGALQYALSL-----DEPSHSWTKS
6321725
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SID18  EIQAITYDSPLLDLLEFHGAQVHRNVHKEFREVOQCTLLSIKTGGCSEDCSYCPQSSRYSTGLKAETLMKKDAVLEAAKKAKESGSTRFCMGA
SID20  EIQAITYDSPLLDLLEFHGAQ-----SSRYNTGLKAQOKLNMNKYAVLEAAKKAKESGSTRFCMGA
SID22  EIQAITYDSPLLDLLEFHGAQVHRNVHKEFREVOQCTLLSIKTGGCSEDCSYCPQSSRYNTGLKAQOKLNMNKDAVLEAAKKAKESGSTRFCMGA
SID24  EIQAITYDSPLLDLLEFHGAQVHRNVHKEFREVOQCTLLSIKTGGCSEDCSYCPQSSRYNTGLKAQOKLNMNKYAVLEAAKKAKESGSTRFCMGA
SID26  EIKSVYDSPVLDDLLEFHGAQVHRHAHNFREVOQCTLLSVKTGGCSEDCSYCPQSSRYDTGVKAQOKLNMNKDAVLEAAEKAKESGSTRFCMGA
SID28  QVKSITYDSPILLLEFHGAQVHRHAHNFREVOQCTLLSIKTGGCSEDCSYCPQSSKYDTGVKGQRLMNKEAVLQAAKKAKESGSTRFCMGA
SID32  -----RDAVLEAAKKAKESGSTRFCMGA
1705463 EIKSVYDSPLLDLLEFHGAQVHRHVNFRREVQCTLLSIKTGGCSEDCSYCPQSSRYSTGVKAQORLMSKDAVIDAAKKAKESGSTRFCMGA
SID30  EIKAIYDKPLMELCWGAGSLHRKFHIGALQMTLLNIKTGGCSEDCSYCAQSSRYQTGLKASKMVSVESVLAARIADKNGSTRFCMGA
2995363 EIQKIYDTPLLIDLIFRAASIHRRKFHDPKVVQCTLLSIKTGGCTEDCKYCAQSSRYNTGVKATKLMKIDEVLEKAKIAKAKGSTRFCMGS
6321725 QLKEIYHTPILLELTHAAQLQHRKWHDPFKVQLCTLMNIKSGGCSEDCCKYCAQSSRNDTGLKAETLMNKVDEVLEKAEAEAKRNGSTRFCIGA
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FIG. 1A





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SID18 QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAP-----NFGDEEATVASTE--RCEQ--AASM  
SID20 QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAP-----SFGEESASAAPTESERSEQ--AASM  
SID22 QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAP-----SFGEESASAAPTESERSEQ--AASM  
SID24 QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAP-----SFGEESASAAPTESERSEQ--AASM  
SID26 QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAP-----NFDQTS---TSFEAERCEQEATAS-  
SID28 QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAP-----SLHEGE---TSVTEDY--KEAASSS  
SID32 QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAP-----NFGDEEVMAAPTE--RCEQ--AALM  
1705463 QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAP-----SFSED---S--ESENCEKVASASH  
SID30 QVLCFMAGANAVFTGETMLTTPAVGWGVDSVVFNRWGLRPMESFEVEALKNDKPATTNTEIIPVEASKAEMPGTVA  
2995363 QALAFMAGANAVFTGEKMLTTPAVSWDSQSOLFYNWGLEGMQSFYGT---STEGEDGTFTLPPKERLAPSPSL  
6321725 QFVCFMAGCNSIFTGKMLTTMCNGWDEDKAMLAKWGLQPMFAFKYD-----RS

## FIG. 1C

Clone cdt2c.pk002.c17 contains a 99 Nucleotide Deletion

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SID19 CGACTGGAGCCGGCCCGAGATCCAGCCGCTCTACGACTCACCGCTCCTCGACCTCCTCTT  
SID21 CGACTGGAGCCGGCCCGAGATCCAGCCGCTCTACGACTCACCGCTCCTCGACCTCCTCTT  
SID19 TCACGGGGGCTCAG-----  
SID21 TCACGGGGGCTCAGTCCACAGAAATGTCCATAATTCAAGAGAAGTGCAACAATGCACACT  
SID19 -----TCATCAAG  
SID21 TCTTTCAATCAAGACTGGTGATGCAGTGAAGATTGTCTTACTGTCTCAGTCAATCAAG  
SID19 ATACAACACTGGATTGAAGGCCCAAAATTTGATGAACAATAATGCTGTCTTGAAGCAGC  
SID21 ATACAACACTGGATTGAAGGCCCAAAATTTGATGAACAACAAGATGCTGTCTTGAAGCAGC

## FIG. 2